CLAIMS:

1. A method for determining a similarity score of a target object with respect to a model object, said target object being in a plane and said model object represented by a model feature vector, the method comprising:

generating regions of the plane according to a first mass distribution of the target object and a second mass distribution of a part of said target object, each of said regions having a corresponding mass distribution indicator;

calculating a target feature vector for said target object according to at least one of said corresponding mass distribution indicators; and

computing said similarity score using said target feature vector and said model feature vector.

2. The method as in claim 1 wherein said generating comprises partitioning said plane to generate said regions according to said first mass distribution and said second mass distribution of a part of said target object.

3. The method as in claim 2 wherein said partitioning said plane comprises:

partitioning said plane into global parts according to said first mass distribution; and

partitioning said global parts into disjoints parts according to said second mass distribution.

4. The method as in claim 3 wherein said generating further comprises combining said disjoint parts to obtain a set of regions.

5. The method as in claim 4 wherein said combining comprises combining pairs of said disjoint parts that are adjacent to obtain a set of regions.

6. The method as in claim 3 wherein said partitioning said plane according to said first mass distribution comprises calculating a global center of mass of said target object and using axes passing through said global center of mass for partitioning said plane.

7. The method as in claim 6 wherein said partitioning according to said first mass distribution comprises partitioning said plane into quadrants having axes passing through said global center of mass.

8. The method as in claim 7 wherein said partitioning according to said second mass distribution comprises calculating a center of mass of each of said quadrants and using axes passing through each center of mass of said quadrants for partitioning corresponding quadrants.

9. The method as in claim 8 wherein each of said axes passing through said center of mass of each of said quadrants is parallel to at least one of said axes passing through said global center of mass.

10. The method as in claim 7 further comprising combining pairs of adjacent quadrants to form half-planes.

11. The method as in claim 10 wherein said partitioning according to said second mass distribution comprises calculating a center of mass of each of said half-planes and using axes passing through each center of mass of said half-planes for partitioning corresponding quadrants.

12. The method as in claim 11 wherein each of said axes passing through said center of mass of each of said half-planes is parallel to at least one of said axes passing through said global center of mass.

13. The method as in 6 wherein said axes passing through said global center of mass comprise orthogonal axes.

14. A method as in claim 3 wherein said generating further comprises selecting said disjoint parts to obtain a set of regions.

15. The method as in claim 1 wherein said computing said similarity score comprises calculating a Euclidean distance between said target feature vector and said model feature vector.

16. The method as in claim 1 wherein said computing said similarity score comprises computing a similarity score that is independent of variations in scale of at least one of said model object and said target object.

17. The method as in claim 1 wherein said computing said similarity score comprises computing a similarity score that is independent of aspect ratio variations

of at least one of said model object and said target object.

18. The method of claim 1 wherein said model object is in said plane, the method further comprising:

generating regions of the plane according to a first mass distribution of the model object and a second mass distribution of a part of said model object, each of said regions generated for said model object having a corresponding model mass distribution indicator; and

calculating a model feature vector for said model object according to at least one of said corresponding model mass distribution indicators.

19. The method as in claim 1 wherein said model object is taken from a bank of model objects, each of said model objects is represented by a model feature vector, and wherein said computing said similarity score comprises computing a similarity score for each couple comprising said target feature vector and one of said model feature vectors.

20. The method as in claim 19 further comprising selecting at least one model object for which a similarity score satisfies a criterion.

21. The method as in claim 19 further comprising, for each said couple comprising said target feature vector and one of said model feature vectors, associating a given weight vector.

22. The method as in claim 1 further comprising associating a given weight vector to the couple comprising said model feature vector and said target feature vector.

23. The method as in claim 22 wherein said computing said similarity score comprises calculating a weighted Euclidean distance between said target feature vector and said model feature vector.

24. The method as in claim 22 wherein said computing said similarity score comprises further using said given weight vector.

25. The method as in claim 24 wherein said computing said similarity score comprises computing a similarity score that is independent of variations in scale of at least one of said model object and said target object.

26. The method as in claim 24 wherein said computing said similarity score comprises computing a similarity score that is independent of aspect ratio variations of at least one of said model object and said target object.

27. A method as in claim 1 wherein said corresponding mass distribution indicator comprises a coordinate of the center of mass of said generated region.

28. A method for comparing a target object in a plane and a model object represented by a model feature vector, the method comprising:

generating regions of the plane according to a first mass distribution of the target object and a second mass distribution of a part of said target object, each of said regions having a corresponding mass distribution indicator;

calculating a target feature vector for said target object according to at least one of said corresponding mass distribution indicators; and

performing a comparison between said target feature vector and said model feature vector.

29. The method as in claim 28 further comprising using said comparison to determine a match between said target object and said model object.